

REMARKS/ARGUMENTS

Claims 1 – 26 are pending in this application. The drawings are objected to under 37 CFR § 1.83(a). Claims 24 and 26 are objected to for various informalities. Claims 3, 6 - 8 and 13 – 20 are objected to under 35 USC § 112, 2nd paragraph. Claims 1, 2, 9 - 12, 21 – 23 and 25 are rejected under 35 USC § 102(b). Claims 3 – 7, 24 and 26 are rejected as being unpatentable under 35 USC § 103(a). Claims 13 – 20 are indicated as containing allowable subject matter. Claims 1, 3, 6 – 8, 13, 20, 23 and 25 are amended. New claims 27, 28 and 29 have been added. No new matter has been added. In view of the amendments and the following remarks, reconsideration and allowance of all pending claims are respectfully requested.

Objection to the Drawings

The office action indicated that the drawings filed on April 21, 2004 are objected to under 37 CFR § 1.83(a). In particular, the limitations of claims 11, 12 and 15 – 17 must be shown or the feature(s) canceled from the claim(s). Applicant has reviewed the file and notes that formal drawings were submitted on August 17, 2005, and that such formal drawings have not been noted as received by the USPTO in the present Office Action. Replacement drawings are being submitted concurrent herewith.

In accordance with 35 USC § 113, and 37 CFR § 1.81, drawings can be required “when necessary for the understanding of the subject matter sought to be patented.” In the present application, additional drawings are not necessary for an understanding of the subject matter that is claimed in claims 11, 12, and 15 – 17 for the reasons stated below.

With respect to claims 11 and 12, Applicant does respectfully direct the Examiner to page 4, lines 25 – 30, which provides sufficient support for one of ordinary skill in the art to

understand the subject matter of the claimed features. Applicant has added several new figures numbered 6A – 6C to illustrate that which is already identified in the specification and understood by one of ordinary skill in the art. The specification has been amended accordingly, and no new matter has been added.

With respect to claims 14 – 17, Applicant respectfully directs the Examiner to FIGURE 3 and the related text beginning on page 5 of the Applicant's specification, which provides sufficient support for one of ordinary skill in the art to understand the subject matter of the claimed features.

For the above stated reasons, the objection to the drawings is believed to be overcome and notice to that effect is respectfully requested.

Allowable Subject Matter

The office action indicated that claims 13 - 20 would be allowable if rewritten to overcome the rejection(s) under 35 USC 112, 2nd paragraph set forth in the Office Action, and to include all of the limitations of the base claim and any intervening claims. Applicant thanks the Examiner for identifying allowable subject matter.

Claim 17 has been amended to depend from independent claim 15. Claim 15 is amended to include limitations that are substantially similar to the limitations from claims 16 and 17 prior to the present amendment. It is believed that claim 15 should now be allowable. Claims 16 – 20 depend upon and further limit independent claim 15, and should be allowable for at least that reason as well as any additional limitations they recite. It is believed that claims 15 - 20 are now in proper form for allowance and notice to that effect is respectfully requested.

Claim Rejections under 35 U.S.C. § 112, 2nd paragraph

Claims 3, 6 - 8 and 13 – 20 are objected to under 35 USC § 112, 2nd paragraph.

Claims 3, 6 – 8 and 13 have been amended to correct for the various minor infelicities without changing the scope of that which is claimed. Claims 14 – 20 no longer inherit the infelicities from claim 13. Claim 20 has been amended to eliminate the reference to a variable that is undefined, and does not change the scope of that which is claimed. It is believed that the objections to claims 3, 6-8 and 13 – 20 are overcome, and notice to that effect is requested.

Claim Rejections under 35 U.S.C. § 102(b)

Claims 1, 2, 9-12, 21 – 23 and 25 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,912,552 to Tateishi.

Applicant believes that at least the following limitations that are not taught by any of the cited references as are found in Applicant's amended claim 1:

“a sense circuit that is arranged to provide a sense signal that is related to a current in the inductor only during a selected operating phase of the converter, wherein the selected operating phase corresponds to one of the first and second operating phases of the converter, and wherein a non-selected operating phase of the converter corresponds to the other of the first and second operating phases of the converter;”

and

“a one-shot circuit that is arranged to initiate the control signal when the start signal is asserted such that the control signal has a variable pulse-width during the non-selected operating phase of the converter.”

According to the office action, the Tateishi reference discloses “a sense circuit (Rs) that is arranged to provide a sense signal that is related to a current in the inductor ...” in the same manner as that described in Applicant's claims. Applicant has amended claim 1 not to overcome a basis of rejection, but merely to clarify the distinctions between the sense resistor that is taught in the Tateishi reference and Applicant's claim 1. The sense resistor that is

described in the Tateishi reference is connected in series between the inductor and the load. As such, the sense voltage (V_s) that is provided by the Tateishi reference is constantly active, and bears no dependency on the operation phase of the converter, which is only taught by Applicant's claim 1.

The office action also recites that the "one-shot circuit (62) is arranged to initiate the control signal when the start signal is asserted such that the control signal has a variable pulse-width during the non-selected operating phase of the converter (Abstract)." An examination of the text of the abstract recites "For fixed switching applications, switching pulses from a affixed frequency oscillator as a first set signal are skipped when a second set signal is not ready. On the other hand, for a variable frequency switching scheme which is implemented by driving the switching with a constant OFF time, the switching pulses is created after both set signal become active." The text in column 8, lines 19 – 31 provides a similar discussion of the same. Nothing in the Abstract or text of the Tateishi reference recites a variable "pulse width" as is described in Applicant's claim 1.

For at least the above reasons, it is believed that claim 1 is allowable. Claims 23 and 25 have been amended in similar form to claim 1, and are believed to be allowable for at least the same reasons. Claims 3 and 6 – 8 have been amended to correct for minor infelicities as previously addressed. Claims 2 – 12 and 21 – 22 depend upon and further limit claim 1, and are believed to be allowable for at least that reasons as well as any further limitations they provide. Claims 1 – 12, 21 – 23 and 25 are believed to be in proper form for allowance and notice to that effect is respectfully requested.

Claim Rejections under 35 U.S.C. § 103(a)

Claims 3 – 7 are rejected under 35 USC § 103(a) as being unpatentable over Tateishi (US 5,912,552) in view of Littlefield (US 5,959,443). Claims 3 – 4 depend upon and further limit claim 1. Claim 5 depends upon and further limits claim 4, while amended claims 6 – 7 depend upon and further limit claim 3. Claim 1 is proposed to be allowable over Tateishi for the reasons stated previously. The Littlefield reference does not overcome the failings of the Tateishi reference with respect to claim 1, for example that the sense circuit from Applicant's

claim 1 does not provide a sense signal indicative of the inductor current during one operating phase of the switching circuit (Note that resistor 103 in Littleton is connected in series between the load and the inductor). As such, claims 3 – 7 should be allowable for at least that reasons as well as any further limitations they recite.

Claims 24 and 26 are rejected under 35 USC § 103(a) as being unpatentable over Tateishi (US 5,912,552) in view of Szepesi (US 4,535,399). Claim 24 depends upon and further limits claim 23. Claim 26 depends upon and further limits claim 25. Claims 23 and 25 are proposed to be allowable for the reasons stated previously. The Szepesi reference does not overcome the failings of the Tateishi reference with respect to claim 23, for example that the sense means from Applicant's claim 23 does not provide a sense signal indicative of the inductor current during one operating phase of the switching circuit. The Szepesi reference does not overcome the failings of the Tateishi reference with respect to claim 25, for example that the sense signal from Applicant's claim 25 is not indicative of the inductor current during one operating phase of the switching circuit. As such, claims 24 and 26 should be allowable for at least that reasons as well as any further limitations they recite.

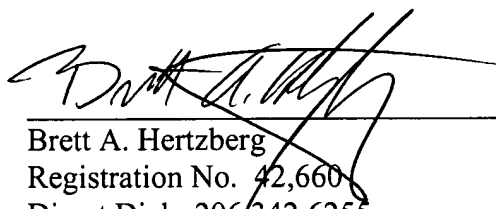
It is believed that the rejection of claims 3-7, 24 and 26 under 35 USC § 103(a) is overcome for at least the reasons stated above, and notice to that effect is requested.

CONCLUSION

In view of the foregoing remarks, all pending claims are believed to be allowable for at least the reasons stated above and the application is in condition for allowance. Therefore, a Notice of Allowance is respectfully requested. Should the Examiner have any further issues regarding this application, the Examiner is requested to contact the undersigned attorney for Applicants at the telephone number provided below.

Respectfully submitted,

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